

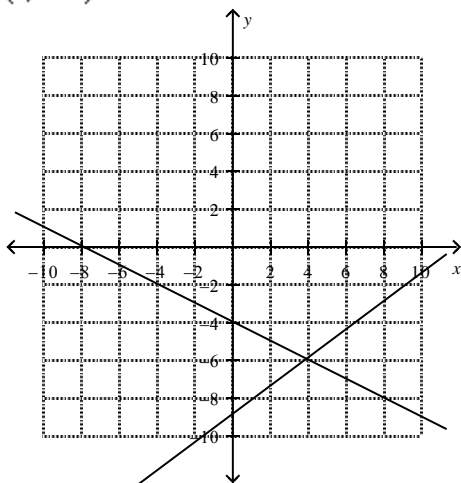
Multiple Choice

_____ 1. Tell whether the ordered pair $(5, -3)$ is a solution of the system $\begin{cases} -3x + 2y = -21 \\ -x - y = -2 \end{cases}$.

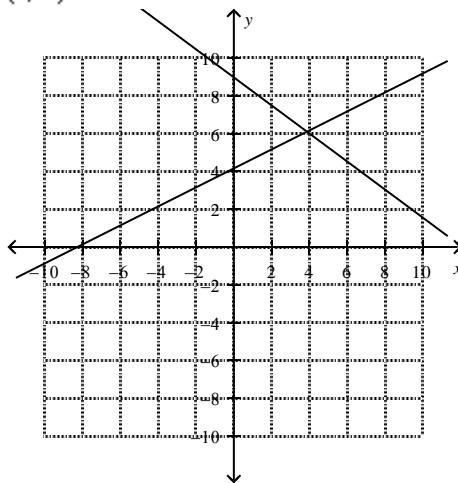
a. no b. yes

- ____ 2. Solve the system $\begin{cases} 3x + 4y = -36 \\ -2x + 4y = -16 \end{cases}$ by graphing.

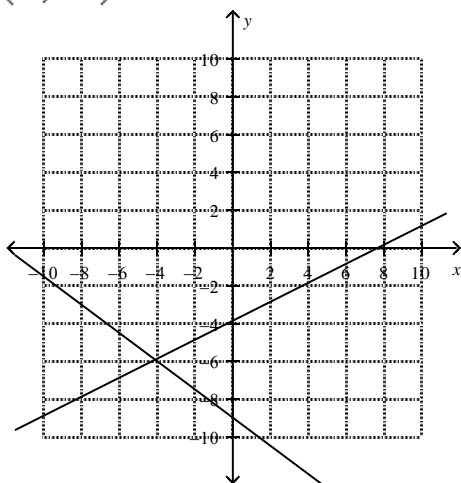
- a. $(4, -6)$



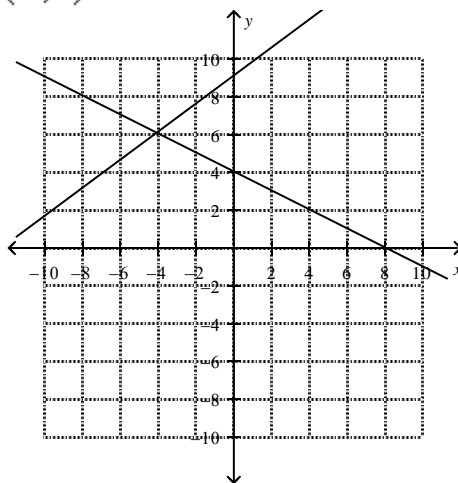
- c. $(4, 6)$



- b. $(-4, -6)$



- d. $(-4, 6)$



- _____ 3. The Fun Guys game rental store charges an annual fee of \$5 plus \$5.50 per game rented. The Game Bank charges an annual fee of \$17 plus \$2.50 per game. For how many game rentals will the cost be the same at both stores? What is that cost?
- a. 3 games; \$22 c. 4 games; \$27
b. 2 games; \$16 d. 6 games; \$38

- _____ 4. The Fun Guys game rental store charges an annual fee of \$25 plus \$6.50 per game rented. The Game Bank charges an annual fee of \$41 plus \$2.50 per game. For how many game rentals will the cost be the same at both stores? What is that cost?
- a. 2 games; \$38
b. 3 games; \$45
c. 6 games; \$64
d. 4 games; \$51
- _____ 5. Solve $\begin{cases} 3x + y = -3 \\ y = x + 5 \end{cases}$ by using substitution. Express your answer as an ordered pair.
- a. $(3, -2)$
b. $(-\frac{8}{3}, -3)$
c. $(-\frac{4}{3}, 1)$
d. $(-2, 3)$
- _____ 6. Solve $\begin{cases} 4x - 4y = -16 \\ x - 2y = -12 \end{cases}$ by using substitution. Express your answer as an ordered pair.
- a. $(8, -4)$
b. $(4, -8)$
c. $(-2, 4)$
d. $(4, 8)$
- _____ 7. Solve $\begin{cases} 6x - 4y = 38 \\ x + 6y = 33 \end{cases}$ by using substitution. Express your answer as an ordered pair.
- a. $(9, 4)$
b. $(9, -4)$
c. $(4, -9)$
d. $(-15, 9)$
- _____ 8. Solve $\begin{cases} 3x - 6y = 12 \\ 2x + 6y = -12 \end{cases}$ by using elimination. Express your answer as an ordered pair.
- a. $(-2, -3)$
b. $(-2, 0)$
c. $(0, -2)$
d. $(-8, -6)$
- _____ 9. Solve $\begin{cases} 2x - 5y = -7 \\ 5x - 3y = 11 \end{cases}$ by using elimination. Express your answer as an ordered pair.
- a. $(3, 4)$
b. $(4, 3)$
c. $(3, 2)$
d. $(\frac{4}{7}, \frac{8}{5})$
- _____ 10. Solve $\begin{cases} -5x + 14y = 17 \\ 9x - 6y = 27 \end{cases}$ by using elimination. Express your answer as an ordered pair.
- a. $(11, \frac{36}{7})$
b. $(5, 3)$
c. $(0, -2)$
d. $(3, 5)$

Chpt 6 study guide

Answer Section

MULTIPLE CHOICE

1. ANS: B

Substitute 5 for x and -3 for y in both equations. Since these values make both equations true, $(5, -3)$ is a solution of the system.

	Feedback
A	Use substitution to check that the ordered pair satisfies both equations.
B	Correct!

PTS: 1

DIF: Basic

REF: Page 383

OBJ: 6-1.1 Identifying Solutions of a System

NAT: 12.5.4.g

TOP: 6-1 Solving Systems by Graphing KEY: ordered pair | system of equations | solution

2. ANS: B

Write each equation in slope-intercept form, $y = mx + b$. Plot the y -intercept $(0, b)$, and use the slope (m) to find a second point on the line. Draw the second line in the same way. Find the coordinates of the point where the lines intersect. This is the solution.

	Feedback
A	Check the signs.
B	Correct!
C	Check that this point satisfies both equations.
D	Check that this point satisfies both equations.

PTS: 1

DIF: Average

REF: Page 384

OBJ: 6-1.2 Solving a System of Linear Equations by Graphing NAT: 12.5.4.d

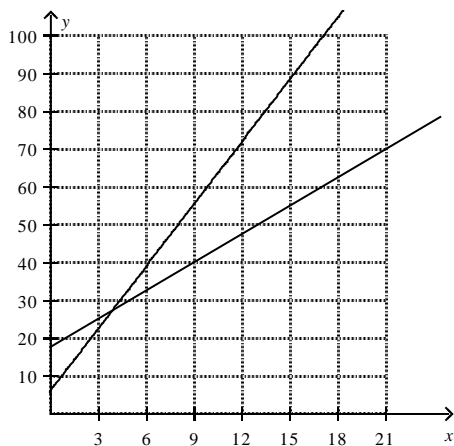
TOP: 6-1 Solving Systems by Graphing KEY: coordinate plane | graphing | solving | system of equations

3. ANS: C

Write a system of equations.

	Total cost	is	cost	per game	plus	annual fee
Fun Guys	y	=	5.5	$\bullet g$	+	5
Game Bank	y	=	2.5	$\bullet g$	+	17

Graph the two equations.



The lines appear to intersect at (4, 27). So the cost will be the same after 4 games, and that cost will be \$27.

	Feedback
A	Write and solve a system of equations. Each equation should represent the total cost at a store.
B	Check that you used inverse operations correctly when solving.
C	Correct!
D	Write and solve a system of equations. Each equation should represent the total cost at a store.

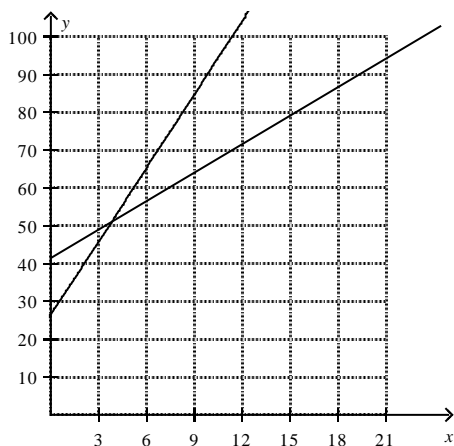
PTS: 1 DIF: Average REF: Page 385 OBJ: 6-1.3 Problem-Solving Application
 NAT: 12.5.4.d TOP: 6-1 Solving Systems by Graphing
 KEY: systems of linear equations | solving systems of linear equations | two unknowns

4. ANS: D

Write a system of equations.

	Total cost	is	cost	per game	plus	annual fee
Fun Guys	y	=	6.5	$\bullet g$	+	25
Game Bank	y	=	2.5	$\bullet g$	+	41

Graph the two equations.



The lines appear to intersect at (4, 51). So the cost will be the same after 4 games, and that cost will be \$51.

	Feedback
A	Check that you used inverse operations correctly when solving.
B	Write and solve a system of equations. Each equation should represent the total cost at a store.
C	Write and solve a system of equations. Each equation should represent the total cost at a store.
D	Correct!

PTS: 1 DIF: Average REF: Page 385 OBJ: 6-1.3 Problem-Solving Application

NAT: 12.5.4.d TOP: 6-1 Solving Systems by Graphing

KEY: systems of linear equations | solving systems of linear equations | two unknowns

5. ANS: D

Step 1 $y = x + 5$ The second equation is solved for y .

Step 2 $3x + y = -3$
 $3x + (x + 5) = -3$ Substitute $x + 5$ for y in the first equation.

Step 3 $4x + 5 = -3$ Simplify and solve for x .
 $4x = -8$
 $\frac{4x}{4} = \frac{-8}{4}$ Divide both sides by 4.
 $x = -2$

Step 4 $y = x + 5$ Write one of the original equations.
 $y = -2 + 5$ Substitute -2 for x .
 $y = 3$ Find the value of y .
 $(-2, 3)$ Write the solution as an ordered pair.

	Feedback
A	You reversed the order of the values.
B	Include the variable x when substituting $x + c$ for y .
C	When combining like terms, remember that x means $1x$.
D	Correct!

PTS: 1 DIF: Basic REF: Page 390

OBJ: 6-2.1 Solving a System of Linear Equations by Substitution

NAT: 12.5.4.g TOP: 6-2 Solving Systems by Substitution

6. ANS: D

Step 1 $x = 2y - 12$ Solve the second equation for x .

Step 2 $4(2y - 12) - 4y = -16$ Substitute $2y - 12$ for x in the first equation.

Step 3 $8y - 48 - 4y = -16$ Use the Distributive Property to simplify.
 $4y - 48 = -16$ Collect like terms.
 $4y = -16 - (-48)$ Subtract -48 from both sides.

$$4y = 32$$

$$y = 8$$

Divide both sides by 4.

Step 4

$$x - 2y = -12$$

$$x - 2(8) = -12$$

$$x - 16 = -12$$

$$x = -12 - (-16)$$

$$x = 4$$

Write one of the original equations.
Substitute 8 for y .

Subtract -16 from both sides.

Step 5

(4, 8)

Write the solution as an ordered pair.

	Feedback
A	After solving one equation for a variable, substitute the value into the other original equation, not the one that has just been solved.
B	Check the signs.
C	After solving one equation for a variable, substitute the value into the other original equation, not the one that has just been solved.
D	Correct!

PTS: 1

DIF: Average

REF: Page 392

OBJ: 6-2.2 Using the Distributive Property

NAT:

12.1.5.e

TOP: 6-2 Solving Systems by Substitution

7. ANS: A

Step 1

$$x = -6y + 33$$

Solve the second equation for x .

Step 2

$$6(-6y + 33) - 4y = 38$$

Substitute $-6y + 33$ for x in the first equation.

Step 3

$$-36y + 198 - 4y = 38$$

$$-40y + 198 = 38$$

$$-40y = 38 - (198)$$

$$-40y = -160$$

$$y = 4$$

Use the Distributive Property to simplify.
Collect like terms.
Subtract 198 from both sides.
Divide both sides by -40 .

Step 4

$$x + 6y = 33$$

$$x + 6(4) = 33$$

$$x + 24 = 33$$

$$x = 33 - (24)$$

$$x = 9$$

Write one of the original equations.
Substitute 4 for y .

Subtract 24 from both sides.

Step 5

(9, 4)

Write the solution as an ordered pair.

	Feedback
A	Correct!
B	Check the signs.
C	After solving one equation for a variable, substitute the value into the other original equation, not the one that has just been solved.
D	After solving one equation for a variable, substitute the value into the other original equation, not the one that has just been solved.

PTS: 1 DIF: Average REF: Page 392
 OBJ: 6-2.2 Using the Distributive Property NAT: 12.1.5.e
 TOP: 6-2 Solving Systems by Substitution

8. ANS: C

Step 1 $3x - 6y = 12$
 $\underline{2x + 6y = -12}$
 $5x = 0$
 $x = 0$

The y-terms have opposite coefficients.
 Add the equations to eliminate the y terms.

Step 2 $3(0) - 6y = 12$
 $0 - 6y = 12$
 $-6y = 12$
 $y = -2$

Substitute for x in one of the original equations.
 Simplify and solve for y.

$(0, -2)$

Write the solution as an ordered pair.

	Feedback
A	This is a solution of the first equation, but it is not a solution of the second equation. Use elimination to find a solution of both equations.
B	You switched the x- and y-coordinates.
C	Correct!
D	Add the equations to eliminate the variable, not subtract.

PTS: 1 DIF: Basic REF: Page 398 OBJ: 6-3.1 Elimination Using Addition
 NAT: 12.5.4.g TOP: 6-3 Solving Systems by Elimination
 KEY: linear equations | system of equations | solving | elimination

9. ANS: B

First, multiply each equation by a number to get opposite coefficients.

$2x - 5y = -7$ $-3(2x - 5y) = -3(-7)$ $-6x + 15y = 21$	$5x - 3y = 11$ $5(5x - 3y) = 5(11)$ $25x - 15y = 55$	Multiply the first equation by -3 and the second by 5 to get opposite y-coefficients.
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Step 1 $-6x + 15y = 21$
 $\underline{25x - 15y = 55}$

Add the two equations to eliminate the y-term.

Step 2 $19x + 0y = 76$
 $x = 4$

Simplify and solve for x.

Step 3 $2x - 5y = -7$
 $2(4) - 5y = -7$
 $8 - 5y = -7$
 $-5y = -15$
 $y = 3$

Write one of the original equations.
 Substitute 4 for x. Simplify and solve for y.

	Feedback
A	You reversed the order of the values.
B	Correct!
C	This coordinate pair does not satisfy both equations. Substitute to check your answer.
D	Multiply all parts of the equation by the same number, and not only the variables you're trying to eliminate.

PTS: 1 DIF: Average REF: Page 399

OBJ: 6-3.3 Elimination Using Multiplication FirstNAT: 12.5.4.g

TOP: 6-3 Solving Systems by Elimination

10. ANS: B

First, multiply each equation by a number to get opposite coefficients.

$-5x + 14y = 17$ $3(-5x + 14y) = 3(17)$ $-15x + 42y = 51$	$9x - 6y = 27$ $7(9x - 6y) = 7(27)$ $63x - 42y = 189$	Multiply the first equation by 3 and the second by 7 to get opposite y-coefficients.
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Step 1 $-15x + 42y = 51$ Add the two equations to eliminate the y-term.

$$\underline{63x - 42y = 189}$$

Step 2 $48x + 0y = 240$ Simplify and solve for x.
 $x = 5$

Step 3 $-5x + 14y = 17$ Write one of the original equations.
 $-5(5) + 14y = 17$ Substitute 5 for x. Simplify and solve for y.
 $-25 + 14y = 17$
 $14y = 42$
 $y = 3$

	Feedback
A	Multiply all parts of the equation by the same number, and not only the variables you're trying to eliminate.
B	Correct!
C	This coordinate pair does not satisfy both equations. Substitute to check your answer.
D	You reversed the order of the values.

PTS: 1 DIF: Average REF: Page 399

OBJ: 6-3.3 Elimination Using Multiplication FirstNAT: 12.5.4.g

TOP: 6-3 Solving Systems by Elimination